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To: Medical Officer in Command

Subj: Monthly report of the Experimental Work of the Artificial Limb Department.

Ref: (a) Advisory Committee on Artificial Limbs ltr dtd 21 June 1948. Jan. 49.

1. Monthly report required by reference (a) is hereby submitted.
2. Commander Thomas J. Canty, MC, USN, Lt. (jg) Robert M. Ware, MSC, USN, and Mr. William C. Oliver attended the meeting of the Advisory Committee on Artificial Limbs, National Research Council at Los Angeles, 17 - 20 January 1949.
3. Dr. Augustus Thorndike of the Veterans Administration visited the hospital on 24 January 1949 and final details and dates were decided for the school of below knee and below elbow prostheses to be held from 28 February to 9 March 1949 inclusive. It was further decided to include in addition to the Veterans Administration limb fitters, civilian limb fitters from the west coast.
4. The following projects are under production, experimentation and further study:

(a) Lower Extremities Section:

I. Foot and Ankle

Dies have been ordered for casting the rubber bumper blocks. This will allow a standard in regards to size and the rubber is available in various durometer readings. At the present time we have been utilizing 35, 45, and 55 durometer rubber. Latex sponge rubber (mopstock) is being utilized as a filler between the foot and the shin block and appears to be superior to the spong rubber that has been used in the past.

II. Shank

Samples of the new shape of the plastic shanks are being made and it is contemplated to have a new set of dies manufactured in order to put this type shank in production. The ankle blocks are now being made from the cosmetic model.

III. Knee

A. Mechanical

No work has been done this past month on the functional below knee joint.

IV. Cosmetic Problem

Work continues on the various types of cosmetic covering for the lower extremity.

V. Brief summary of status of models as a unit.

The hydraulic tilting table prosthesis is working well on one amputee and further units are being manufactured in order to fit additional cases.

A number of soft backs have been fitted on the above knee suction sockets and seem to be an improvement.

"Hydrock", a dental type of plaster stone, is being utilized instead of dental plaster in taking impressions of below knee stumps. This material has only 1/10 of 1 percent change in expansion and investigation proves that even with the best quality of dental plaster 1/32" to 1/4" in diameter expansion occurs which effects the final fitting of the socket.

Additional cases are being fitted to the below knee suction socket.

B. Upper Extremities Section:

I. Arms

A number of tests have been run on the functional elbow joint by placing the joint in an accelerated testing machine and it is found that the wire cable breaks at the ends. This is due to the combination of flexion and torque. A number of amputees have reported breaking their cables in various lengths of time, from three weeks to six months. A joint has been redesigned to provide a ball and socket at each end of the cable. This new type joint underwent accelerated testing for thousands of cycles without any sign of wear or break. This same problem has occurred in the cable attachment for the hook which broke at the point of attachment to the hook. This problem was solved by utilizing a small ball at the end of the cable and a cup in the hook where the cable is attached.

II. Hands, Hooks and Tools.

No changes have been made in the Robinson hand during the past month,

III. Cosmetic Problem.

No work has been done on the cosmetic problem of the arm this month.

IV. Harness and/or other outside control

The company manufacturing the nylon webbing for a shoulder harness has been contacted in order to secure a 2" webbing which we believe would be superior over the 1" webbing being utilized at the present time.

V. Brief summary of status of models as a unit.

Suction sockets are being fitted to above and below elbow arms.

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